NATIONAL IGNITION FACILITY FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT TO THE SSM PEIS

1 INTRODUCTION[1]

This Supplemental Environmental Impact Statement (SEIS) is being prepared pursuant to a Joint Stipulation and Order approved and entered as an order of the court on October 27, 1997, in partial settlement of the lawsuit Civ. No. 97-936 (SS) (D.D.C.), *Natural Resources Defense Council* [NRDC] *et al. v Richardson et al.* (Attachment 1). In the Joint Stipulation and Order, the U.S. Department of Energy (DOE) agreed to prepare an SEIS to the Programmatic Environmental Impact Statement for Stockpile Stewardship and Management (DOE/EIS-0236) (SSM PEIS) (DOE 1996a) evaluating specific issues related to the National Ignition Facility (NIF). The Notice of Intent (NOI) to prepare the SEIS was published in the *Federal Register* on September 25, 1998 (63 FR 51341) (Attachment 2). This NOI was amended on August 5, 1999 (Attachment 3).

1.1 BACKGROUND

The SSM PEIS addressed alternative plans for DOE's defense program activities related to nuclear weapons stockpile issues at several DOE laboratories, including Lawrence Livermore National Laboratory (LLNL) in Livermore, California. The environmental consequences of construction and operation of the NIF were addressed in detail in the SSM PEIS, Volume III, Appendix I, entitled *National Ignition Facility Project Specific Analysis* (NIF PSA). The evaluations contained in this SEIS only address certain issues with respect to buried hazardous or radioactive materials; all other portions of the NIF PSA stand as written.

The NIF PSA analyzed five alternative locations at four DOE sites and two design options for NIF, as well as the no action alternative of not constructing and operating NIF. The analysis concluded that the impacts of constructing and operating NIF would be minor, including a very low radiation dose to the public during operation and an extremely low potential for an accident resulting in radiation releases. Doses from these sources would be well below levels set in applicable regulations and guidelines. The analysis estimated that the impacts from such an accident would be small. The PSA concluded that there would be few significant differences in adverse impacts among the alternative sites. The Record of Decision (ROD) for the SSM PEIS was published in the *Federal Register* on December 26, 1996 (61 FR 68014). In the ROD, DOE announced its decision to construct and operate NIF at LLNL. Groundbreaking occurred on May 29, 1997. Construction of the conventional facilities for NIF is ongoing and is expected to be completed in late 2001.

[1] The lines to the right indicate where changes have been made between the draft SEIS and the final SEIS.

On September 3, 1997, excavation activities at the NIF site uncovered capacitors containing a polychlorinated biphenyl (PCB) oil, as well as some nonhazardous items. Several of the capacitors had leaked, contaminating surrounding soil with Diaclor, a mixture of several PCBs (Bainer and Berg 1998). The possibility of such an occurrence was unforeseen and therefore not addressed in the SSM PEIS. A total of 112 capacitors, 694 metric tons (766 short tons) of PCB-contaminated soil, and approximately 75 corroded waste drums (containing nonhazardous concrete) were promptly removed, and the site was cleaned up in accordance with applicable federal, state, and local requirements under a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal action under paragraph 300.415 of the National Contingency Plan (40 CFR 300). This cleanup was conducted in September 1997 by LLNL with oversight by DOE and in coordination with the CERCLA Remedial Project Managers (RPMs). The RPMs represent the U.S. Environmental Protection Agency (EPA), the California Department of Toxic Substances Control, and the California Regional Water Quality Control Board-San Francisco Bay Region. The CERCLA RPMs agreed to a soil cleanup standard of 25 parts per million (ppm) based on Toxic Substances Control Act (TSCA) guidance if the soil could be reused at the NIF construction site. It was later determined that most of the soil did not meet the engineering criteria for reuse at the construction site and would need to be shipped to an approved off-site hazardous waste disposal facility. To expedite removal and to avoid further delay in NIF construction, a cleanup level of 1 part per million (ppm) was proposed and agreed to by the RPMs. This level was the reporting limit for chemical analysis of these soils and was consistent with the EPA Region 9 Preliminary Remedial Goal (PRG) of 1.3 ppm for unspecified PCBs in soils of an industrial site.

On September 22, 1997, the plaintiffs in *NRDC v. Richardson* filed a motion under Rule 60(b) of the Federal Rules of Civil Procedure in which they alleged that DOE knew but did not adequately analyze and disclose the risk of building NIF in an area that may contain buried hazardous, toxic, and/or radioactive materials or waste. DOE denied the allegations in the plaintiffs' motion. In the Joint Stipulation and Order of October 27, 1997, which settled all claims in the plaintiffs' Rule 60(b) motion, DOE agreed to conduct an assessment of "… the reasonably foreseeable significant adverse environmental impacts of continuing to construct and of operating NIF at LLNL with respect to any potential or confirmed contamination in the area by hazardous, toxic, and/or radioactive materials" and to present the results in an SEIS (this document).[2]

As agreed upon in the Joint Stipulation and Order (Attachment 1), DOE conducted characterization studies to determine the presence of any additional buried hazardous, toxic,

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[2] On April 30, 1997, the NRDC and 38 other organizations filed a complaint and a motion for a preliminary injunction against DOE, alleging, among other things, that the SSM PEIS failed to analyze the environmental impacts of, and the reasonable alternatives to, construction and operation of the NIF at LLNL. On August 8, 1997, the U.S. District Court for the District of Columbia denied the plaintiffs' motion for preliminary injunction. In their September 22, 1997, Rule 60(b) motion, the plaintiffs renewed their request for a preliminary injunction as it applied to the NIF; that request was resolved by the October 27, 1997, Joint Stipulation and Order. On August 18, 1998, the court granted DOE's motion for partial summary judgment, including that portion dealing with all other issues raised by the plaintiffs relating to the NIF. Therefore, preparation of this SEIS pursuant to the Joint Stipulation and Order resolves all the remaining issues in *NRDC v. Richardson* regarding the NIF.

and/or radioactive materials in the northeastern corner of LLNL, where the NIF site is located. The progress of the characterization activities was documented to the court in quarterly reports (DOE 1997, 1998a-d, 1999b-d). Those characterization activities are now complete, and the results are analyzed in this SEIS. As discussed in Sections 2.3 and 4, the characterization studies did not detect the presence of any additional buried hazardous, toxic, and/or radioactive materials that would adversely impact human health and the environment.

Over the period October 7-12, 1998, approximately 1 year after the Joint Stipulation and Order, workers conducting routine drainage maintenance operations in the center of the East Traffic Circle (ETC) Area uncovered debris (wood, metal, plastic, etc.) while trenching down to a depth of about 1.4 m (4.5 ft). This location is outside the NIF Construction Area. Soils from the ETC Area were tested, and the PCB Aroclor 1254 was found. This PCB is believed to represent residual contamination from capacitors previously excavated during the ETC Landfill Closure in 1984. The soil removed for the drainage maintenance operations was stored on plastic in an area away from the excavation, and two composite samples were collected for chemical analyses. On December 18, 1998, the two samples were confirmed to contain Aroclor 1254 at 98 and 120 ppm. No other chemical constituents of concern (volatile organic compounds, metals, and radionuclides) were detected. After it was confirmed that the soil removed from the ETC Area contained Aroclor 1254, the RPMs were immediately notified. Subsequent actions, such as soil disposal, geophysical surveys, and soil sampling, were planned and implemented with the RPMs' concurrence. The cleanup level developed in consultation with the RPMs was 18 ppm and was documented in an Action Memorandum (Joma 2000). During the week of January 4, 1999, the PCB-contaminated soil was sent to an off-site EPA-approved hazardous waste disposal facility. In consultation with the RPMs, sampling was conducted to verify that no residual contamination remained where the soil had been stored and loaded for off-site disposal.

The extent of the residual contamination remaining after PCB removal was assessed, and although interviews and historical searches indicated that there was a low likelihood of the existence of any additional buried sources of contamination, surface geophysical surveys and sediment sampling were conducted within the East Traffic Circle area under the oversight of the CERCLA RPMs. Soil samples collected in the ETC Area indicated that shallow soil (0–0.75 m [0–2.5 ft]) in some locations contained residual PCB concentrations above the cleanup level of 18 ppm. In consultation with the RPMs, surface soil was scraped off of these areas and confirmatory samples were collected to determine the concentrations in the remaining surface soil. Areas where residual Aroclor 1254 concentrations were still above the cleanup level were scraped until eventually the surface soil concentrations were below 18 ppm (Bainer 1999; DOE 1999d). The PCB-contaminated soil removed was sent to the same off-site EPA-approved hazardous waste disposal facility. The analytical procedures used in both this cleanup action and the earlier cleanup action at the NIF construction site were performed in accordance with the approved CERCLA Quality Assurance Project Plan (QAPP) and DOE standard operating procedures (Dibley 1999; Dibley and Depue 1999; Joma 2000).

On August 5, 1999, DOE issued an amended NOI for preparation of this SEIS for the SSM PEIS (64 FR 42681). The amended NOI announced the revised schedule for preparation of the Draft SEIS.

1.2 PURPOSE AND NEED

The purpose and need for the NIF is explained in the SSM PEIS (DOE 1996a, Section I.2) and is summarized here. The NIF will provide a unique capability as a key component of DOE's science-based stewardship of the nation's nuclear weapons stockpile. Planned experiments with NIF, at temperatures and pressures near those that occur in nuclear weapon detonations, will provide data needed to verify certain aspects of sophisticated computer models. As explained in the SSM PEIS, those models are needed to simulate weapons physics, thereby providing insights on the reliability of the weapon stockpile (DOE 1996a, Section I.2.2.3). As a multipurpose inertial confinement fusion facility, the NIF will also be important to national energy (e.g., next critical step in scientific evaluation of inertial fusion energy as a future environmentally attractive energy source), basic science (e.g., providing insight to the origin of the universe), and technology (e.g., developing new technologies to aid U.S. industrial competitiveness in optics, lasers, and integrated circuit manufacturing) missions. This need was recently reinforced by a DOE/laboratory paper (Gioconda et al. 2000) on the NIF and stockpile stewardship.

DOE's purpose for preparing this SEIS is twofold. First, the SEIS evaluates whether the results of the characterization studies completed pursuant to the Joint Stipulation and Order should affect the manner in which DOE proceeds with construction and operation of the NIF. Second, the SEIS evaluates whether there are (1) any changes to the NIF proposed action not previously addressed in the SSM PEIS that are relevant to environmental concerns or (2) any significant new circumstances or information relevant to environmental concerns and bearing on the NIF proposed action or its impacts. Among the issues contained in the latter category, this SEIS evaluates the issues raised by the Conference Report accompanying the Energy and Water Development Appropriations Act for Fiscal Year 2001, Pub. L. No. 106-377, regarding the potential for operating the NIF at less than the planned 192 beams.[3]

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[3] "The conferees have included statutory language providing that only $130,000,000 shall be made available for NIF at the beginning of fiscal year 2001 and the remaining $69,100,000 shall be available only upon a certification after March 31, 2001, by the Administrator of the National Nuclear Security Administration that several requirements have been met. These requirements include:

A. A recommendation on an appropriate path forward for the project based on a detailed review of alternative construction options that would (1) focus on first achieving operation of a 48 or 96 beam laser; (2) allow for the full demonstration of a [sic] such a system in support of the stockpile stewardship program before proceeding with construction and operation of a larger laser complex; and (3) include a program and funding plan for the possible future upgrade to a full NIF configuration. The recommendation should include identification of available "off-ramps" and decision points where the project could be scaled to a smaller system.

D. Completion of a study that includes conclusions as to whether the full-scale NIF is required in order to maintain the safety and reliability of the current nuclear weapons stockpile, and whether alternatives to the NIF could achieve the objective of maintaining the safety and reliability of the current nuclear weapons stockpile."

[H.R. Rep. No. 106-988 at 277 (2000).]

1.3 REQUIREMENTS OF THE JOINT STIPULATION AND ORDER

1.3.1 Phase I and Phase II Investigations

The site characterization activities necessary to meet the requirements of the Joint Stipulation and Order (Paragraphs 2-5) were carried out in two phases. Phase I, as defined in Paragraph 2 of the Order, required a review of all available reports, studies, maps, aerial photographs, and other available records, as well as interviews with workers and retirees who are reasonably known to have knowledge of the potential existence and location of buried materials containing the mentioned substances in any of seven specified areas around and including the NIF construction site. Phase II consisted of the remainder of the required activities, as summarized here. Paragraph 3 required that in the event that activities under Paragraph 2 identified any areas where the materials in question may have been buried, appropriate geophysical surveys be carried out to further investigate such areas. Potential hazardous waste burial sites, according to Paragraph 4, would then be investigated by, at a minimum, conducting soil boring and/or soil vapor surveys. Finally, Paragraph 5 required the construction of one or more groundwater monitoring wells in the affected areas to monitor impacts from dewatering activities at the NIF construction site.

The Joint Stipulation and Order required (in Paragraph 6) that during performance of the activities in Phases I and II, DOE file a report every 90 days (1) summarizing the progress made in conducting the analyses in Phases I and II and in constructing the NIF, and (2) describing the analyses and NIF construction activities planned for the next 90-day period. DOE has filed eight such reports — in November 1997; February, May, August, and November 1998; and March, June, and September 1999 (DOE 1997, 1998a-d, 1999b-d).

1.3.2 Stipulated Areas

The seven areas covered by the Joint Stipulation and Order occupy a large portion of the northeastern quadrant of the Livermore Site. Figure 1.1 shows that six of the areas occupy a single contiguous block, while the seventh, the Northern Boundary Area, lies a short distance northwest of the main block. The areas identified for investigation in the Joint Stipulation and Order are as follows:

a. Area 1: Helipad Area;

b. Area 2: Building 571 Area;

c. Area 3: Northern Boundary Area;

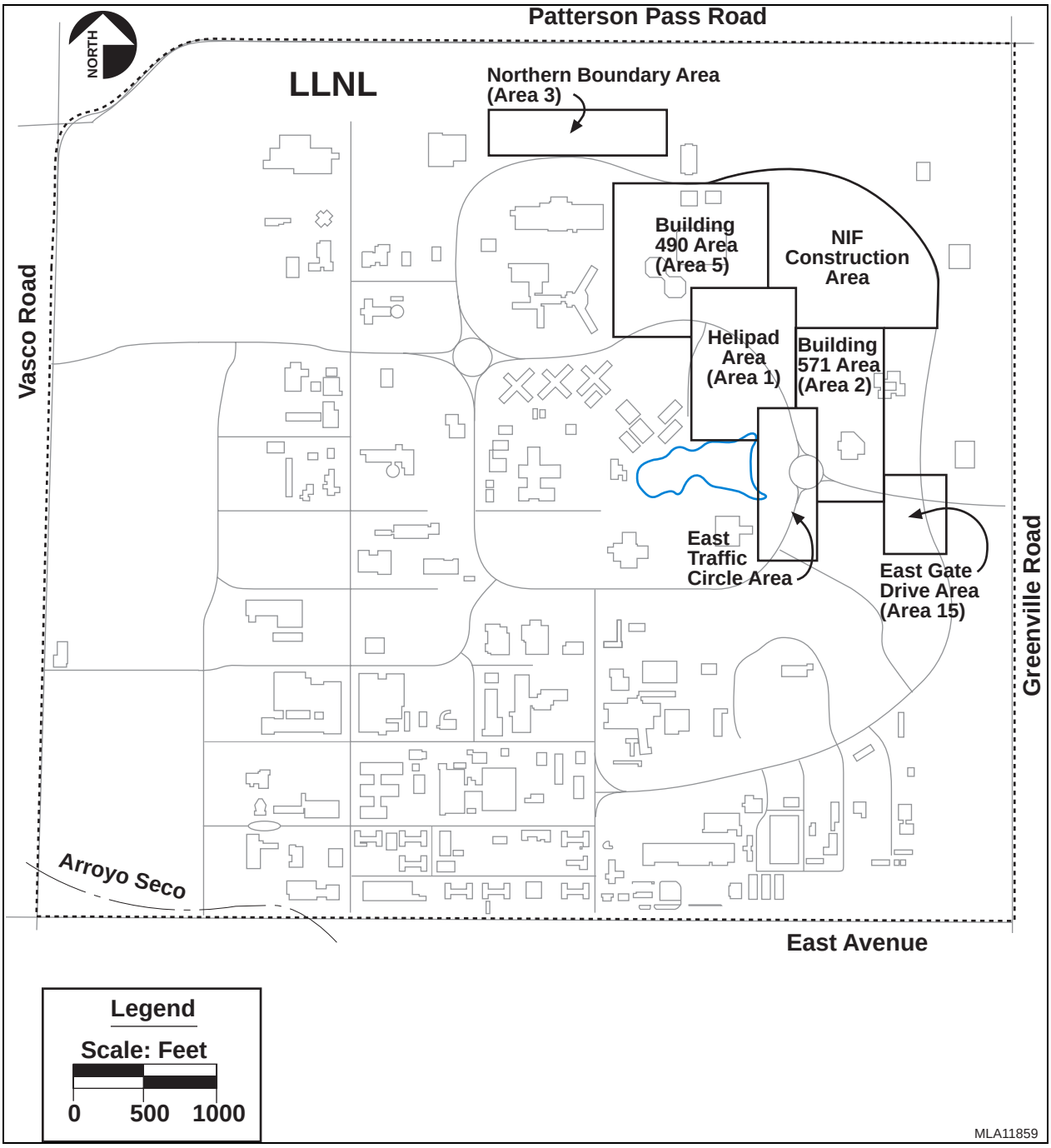

FIGURE 1.1 Areas Identified for Further Investigation in the Joint Stipulation and Order

d. Area 5: Building 490 Area;

e. East Traffic Circle Area;

f. Area 15: East Gate Drive Area; and

g. Area extending from Areas 1, 2 and 5 to and including the NIF construction site and beyond to the perimeter of the circular road immediately beyond the NIF construction site, as marked on the map in the Joint Stipulation and Order (in this SEIS this area is called the "NIF Construction Area").

The above designations refer to current uses and are not necessarily linked to any past waste placement activities; waste burial sites are known to have been used within these areas. No past waste placement activities were known in the NIF Construction Area at the time of preparation of the SSM PEIS. Known waste placement locations in the stipulated areas were remediated by the end of 1984, with a CERCLA review completed in 1987. Those locations are as follows:

- The Northern Boundary Area contains a former garbage dump (landfill) used for the disposal of nonhazardous laboratory wastes. The landfill was operated from around 1965 to 1974. (An additional garbage pit from the same or earlier era located along the eastern border of the northeast quadrant is outside the stipulated areas [Dreicer 1985].)

- The East Traffic Circle Area includes a major landfill that was operated from the late 1950s to the early 1980s; some hazardous materials, including PCBs, were placed in the landfill. The East Traffic Circle Landfill (ETCL) was remediated and closed, and the East Traffic Circle was restored in the mid 1980s. As discussed in Section 1.1, soil containing residual PCB Aroclor 1254 was excavated in 1998 from the ETC Area during routine maintenance operations and disposed of under the CERCLA removal process.

- The Helipad Area, Building 490 Area, and East Gate Drive Area are currently undergoing groundwater treatment and/or monitoring for volatile organic compound (VOC) contamination from past releases.

1.3.3 Supplemental Environmental Impact Statement

The Joint Stipulation and Order also provides for DOE to prepare and circulate for public comment a supplement to the SSM PEIS, in accordance with DOE National Environmental Policy Act (NEPA) regulation 10 CFR 1021.314(d). This SEIS has been prepared to comply with

that provision. Paragraph 7 of the Joint Stipulation and Order provides that the SEIS will evaluate "…the reasonably foreseeable significant adverse environmental impacts of continuing to construct and of operating NIF at LLNL, with respect to any potential or confirmed contamination in the area by hazardous, toxic and/or radioactive materials."

The impacts of operating NIF, other than those potentially related to any potential or confirmed buried hazardous, toxic, or radioactive materials as analyzed in this SEIS, have already been addressed in the SSM PEIS (Appendix I). DOE has determined there was no new information or changed circumstances related to NIF operations, other than those contained in the SEIS, which would require further detailed reevaluation of NIF operations as contained in the SSM PEIS (see Section 2.2).

1.4 COMMENTS RECEIVED ON THE NOTICE OF INTENT

DOE received one set of comments, from the U.S. Environmental Protection Agency (EPA), on the September 25, 1998, NOI. The EPA commented that the SEIS scope should include seismic potential, environmental hazards of operating NIF that were not identified in the Joint Stipulation and Order, waste streams and waste management from operations, and permitting and regulatory approval. DOE has considered these comments and has addressed them in a manner consistent with the scope of the SEIS, i.e., whether they bear on the question of contamination by hazardous, toxic, or radioactive materials in the area of NIF or whether they present changes or significant new information relevant to environmental concerns. However, the issues of seismic potential and environmental hazards of operating NIF have previously been addressed in the SSM PEIS, and they do not present changes or significant new information relevant to environmental concerns. Permitting and regulatory approval with respect to cleanup of recently discovered PCB wastes and contamination, including CERCLA and Resource Conservation and Recovery Act (RCRA) requirements, are included in this SEIS.

Careful consideration was given to EPA's comments. The responses to those comments, which are paraphrased in italics below, are as follows:

- *A clear statement of purpose and need for DOE action was requested.* The purpose and need for the SEIS are established by: (1) any changes to the NIF proposed action not previously addressed in the SSM PEIS, including the requirements in the Joint Stipulation and Order, that are relevant to environmental concerns; and (2) any significant new circumstances or information relevant to environmental concerns and bearing on the NIF proposed action or its impacts, including the requirements in the Joint Stipulation and Order, that were not previously addressed in the SSM PEIS. The purpose and need for NIF as contained in the SSM PEIS (DOE 1996a, Appendix I) have not changed. They are incorporated by reference and briefly described in Section 1.2 of this SEIS.

- *A concise summary of the history of the project and events leading to this SEIS was requested.* Section 1 (including Section 1.1) of this SEIS provides the history of events leading to this SEIS.

- *A summary of the various elements of the NIF facility was requested.* A brief description of NIF is found in Section 1. The various elements of NIF are summarized in Appendix I of the SSM PEIS. No new information or changed circumstances have been found with respect to the NIF facility as described in the SSM PEIS. Further description of the NIF is not provided in order for the document to remain focused on the required investigations and the impacts of any soil or water contamination as a result of previously undiscovered buried materials.

- *A request was made to post the SSM PEIS and ROD on the World Wide Web and to reference the Uniform Resource Location (URL) on the abstract page.* The summary SSM PEIS is found at the following URL: http://www.nepa.eh.doe.gov/eis/nometa/eis0236/toc.htm. The ROD can be found at http://www.tis.eh.doe.gov/nepa/docs/rods/1996/index.htm.

- *Full results of all field examinations and remediation activities should be summarized.* Section 4 summarizes in detail the results of field investigations and describes whether residual contamination remains after completion of cleanup activities. Further detail is contained in the publicly available quarterly reports prepared as required by the Joint Stipulation and Order.

- *Include the environmental hazards of operating NIF*. The impacts of operating NIF, other than those potentially related to any potential or confirmed buried hazardous, toxic, or radioactive materials as analyzed in this SEIS, have already been addressed in the SSM PEIS (Appendix I). The ultimate design and operation of NIF have remained essentially unchanged since the preparation of the SSM PEIS, although the initial level of operations will be lower in some respects. DOE believes that the analysis in that document accurately reflects the environmental impacts of constructing and operating NIF. Therefore, DOE has determined there were no new information or changed circumstances related to NIF operations, other than those contained in the SEIS, which would require further reevaluation of NIF operations as contained in the SSM PEIS.

- *Include the most current East Bay seismic potential in the SEIS.* The affected environment section of this SEIS includes geologic information, including seismic potential. The engineering design appropriately accounts for the most current seismic potential according to DOE and California standards.

- *Expected and potential waste streams from routine operations should be described.* This issue is discussed in the SSM PEIS (Appendix I). DOE determined there was no new information or changed circumstances related to NIF operations, other than those contained in the SEIS, which would require further reevaluation of NIF operations as contained in the SSM PEIS.

- *DOE should examine its final purpose and need and the reason for the proposed action.* The purpose and need for NIF continues as stated in the SSM PEIS. A brief statement of purpose and need is contained in Section 1.2.

- *DOE should provide recommendations, where appropriate, as to how the ongoing project could be modified to most adequately mitigate any potential for adverse impacts.* Section 4 of this SEIS includes an analysis of whether any hazardous materials discovered during the characterization studies under the Joint Stipulation and Order would have impacts on human health or the environment. No impacts were discovered that would require further mitigation.

- *A cumulative impact discussion should be added.* Section 4.4 discusses cumulative impacts.

- *Recommend that the SEIS contain a listing of various permits and other approvals required for construction and operations, including the name of the permit and the issuing agency*. This SEIS identifies the regulatory framework of activities conducted under the Joint Stipulation and Order. In general, regulatory requirements for the construction and operation of NIF are covered in the SSM PEIS (DOE 1996a, Appendix I).

1.5 COMMENTS ON THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

DOE issued the draft SEIS for public review and comment by mailings to stakeholders, by an announcement in the *Federal Register* (FR) on November 5, 1999, with a DOE Notice of Availability (64 FR 60430), and by an Amended Notice (64 FR 61635) in the *Federal Register* on November 12, 1999. Copies of the draft SEIS were initially mailed to 95 individuals and to one or more people in federal and state agencies, local and county governments, and environmental groups — a total of 220 in all. The distribution list for the draft SEIS is provided in Section 6. Public notices announcing the publication of the draft and soliciting comments were also published on November 5, 1999, in the *Tri-Valley Herald* and *The Oakland Tribune*.

The 45-day comment period on the draft SEIS extended from November 5, 1999, to December 20, 1999. Public comment meetings were held on Wednesday, December 1, 1999, in

Washington, D.C., and on Wednesday, December 8, 1999, in Livermore, California. Eight people registered their attendance at the Washington, D.C., meeting, and 34 people registered their attendance at the two Livermore meetings. The format of the public meetings included a presentation by the DOE NEPA Document Manager followed by a question and answer period. Following the question and answer period, members of the public formally presented their comments on the SEIS. Spoken comments were recorded by a court reporter, and transcripts are included in Volume II. Written comments were also received.

DOE considered both oral and written comments to evaluate the accuracy and adequacy of the draft SEIS and to determine whether the text needed to be clarified, corrected, or otherwise revised. DOE gave equal weight to spoken or written comments and to comments received during meetings or received in other ways during the comment period. A summary of general issues, the full text of comment documents, and DOE's responses to the individual comments are provided in Volume II of this SEIS.

Public comments on the Draft SEIS identified 12 general issues. The brief statement of these issues and DOE's response, including any changes in the SEIS, are provided below. The issues and DOE's responses are more fully described in Section 2 of Volume II of this SEIS.

1. Preference for Ceasing NIF Construction for Environmental Reasons. Some commenters opposed NIF construction because of impacts on and risks to human health and the environment from facility operations. Based on the results of this SEIS, DOE has concluded that the impacts and risks from continued construction and operations of NIF with respect to potential contamination by hazardous, toxic, and/or radiological materials would be low.

2. Preference for Ceasing NIF Construction for Non-environmental Reasons. Some commenters opposed NIF construction because of non-environmental considerations, such as cost, non-technical issues, design issues, and national security. DOE will take these issues into consideration in the Record of Decision.

3. SEIS Inadequacy Because DOE Did Not Hold Public Scoping Meetings. Neither the CEQ nor DOE NEPA regulations obligate the preparing agency to hold scoping meetings for an SEIS. However, DOE welcomed comments from other venues and considered all comments. The public was given an opportunity to comment on the scope of the SEIS as announced in the Notice of Intent, which included directions for providing comments.

4. Breadth of Scope and Impacts of NIF Operations. Commenters stated the SEIS should address and reevaluate the impacts of NIF operations for additional areas not included in the SEIS, including normal operational releases to the environment and waste management. The ultimate design and

operation of NIF have remained essentially unchanged since the preparation of the SSM PEIS, although the initial level of operations will be lower in some respects. DOE believes that the analysis in that document accurately reflects the environmental impacts of constructing and operating NIF. Therefore DOE has determined that there were no new information or changed circumstances related to NIF operations, other than those contained in the SEIS, which would require further reevaluation of NIF operations as contained in the SSM PEIS. In response to these comments, Section 1 of the SEIS was expanded to more fully address DOE's determination of scope.

5. Additional Operational Changes That Should Be Addressed in the SEIS. DOE evaluated certain hypothetical operational changes raised by commenters about additional target materials (plutonium, enriched uranium, and lithium hydride), potential damage to optics, more frequent maintenance and cleaning of optics, and lower energy operations or reduced beam lines. DOE determined that any proposal to use plutonium, enriched uranium, or lithium hydride was not ready for consideration in a NEPA document. Maintenance of optics was already included in the NIF envelope of operations as described and evaluated in the SSM PEIS. Recently Congress directed the National Nuclear Security Administration (NNSA) to review options that would change the schedule for implementing the full design number of 192 beams or options that would possibly operate at a reduced number of beams to allow full demonstration of the system before proceeding with full operation (see Section 1.2). These changes would be modifications of the original proposal, resulting in a reduced project scope. DOE has examined the environmental implications of implementing these modifications and has concluded that the impacts would fall within the bounds of those already evaluated for the 192-beam design in the SSM PEIS. The SSM PEIS demonstrated that the impacts of the 192-beam design are minor. Furthermore, DOE has concluded that the impacts do not vary significantly among the various options using fewer beams.

6. The SEIS Is Not a Decision-Making Document Because Construction Continued. DOE, in the public meetings, provided the reason that construction continued during preparation of this SEIS. The SEIS would have been more "forward looking" (evaluated future actions in more detail) if further buried objects or wastes were found during the characterization studies. If significant contamination had been found, DOE would have halted construction (depending on the levels), assessed consequences, developed removal or remediation procedures, included assessments in the SEIS, and incorporated results in the Record of Decision. However, since additional sources of contamination in the NIF construction areas were not found, the SEIS mainly evaluated the investigations and their results.

7. The SEIS Improperly Characterized the No Action Alternative. DOE believes that the characterization of no action in the SEIS is appropriate under the circumstances. Construction is now ongoing. This situation represents the "status quo" and thus was analyzed as one construct of no action in the draft SEIS. However, DOE realized that some readers could hold the position that no action should mean "no project" rather than maintenance of the status quo. Therefore, the draft SEIS also included a second construct of no action that would involve ceasing construction of NIF. This was the no action alternative from the SSM PEIS. DOE does not believe that this is a reasonable alternative, since the need for NIF has not changed and the studies conducted under the Joint Stipulation and Order found no evidence of additional buried materials. However, the impacts of this second construct of no action were included in the draft SEIS and here in the final SEIS. DOE believes that both of these constructs are properly characterized as no action and that they should not be considered as action alternatives.

   In response to public comment, the discussions of the possible scenarios that could result from ceasing construction of NIF and the impacts of those scenarios have been expanded in the final SEIS. The three options for ceasing construction are placing the facility in safe storage (deactivation or "mothballing"), alternative use of the facility, and demolition. DOE decided not to add the alternative of ceasing construction and abandonment of the facility, as suggested in public comment, to the final SEIS. DOE does not consider ceasing construction of NIF to be a reasonable alternative.

8. Purpose and Need for NIF; NIF Mission Has Changed. Some commenters stated their belief that NIF was no longer needed, concluded that the purpose and need for NIF has changed with the end of the Cold War, and questioned the relationship of NIF to weapons testing. DOE examined these issues and concluded that the purpose and need were as described in the SSM PEIS. NIF remains an important element of science-based stockpile stewardship. It will allow experimental study of thermonuclear burn in the laboratory. It will extend the range of investigations of important regimes of high-energy-density science. NIF will provide data needed for sophisticated models that simulate the physics of nuclear weapons.

9. Nuclear Weapons Are Not Needed. Commenters provided many comments on U.S. nuclear policy, nuclear weapons, and proliferation of nuclear weapons. DOE examined these issues and concluded that these non-environmental issues will be taken into consideration in the Record of Decision.

10. Costs of NIF. Comments were provided on recent reports of cost overruns in the NIF program. On December 14, 2000, the Secretary of Energy certified and submitted to Congress a revised cost and schedule baseline for

construction of NIF that increased the cost to complete the project and extended the schedule. DOE examined this issue and stated that, while changes in the NIF program are possible as a result of cost and schedule considerations, any such changes will be within the envelope of NIF operations as described in the SSM PEIS.

11. Characterization Studies. Commenters had questions as to how characterization studies were performed and questioned the conclusion of the SEIS that there is a "low likelihood" that additional buried hazardous objects or wastes exist in the stipulated areas. DOE examined the issues raised by comment and concluded that no revision is necessary. The site has been intensively evaluated with geophysical investigations. Numerous soil borings have been made as part of this investigation. More than 1,000 soil borings and more than 450 monitoring wells exist on site. Additional sampling would have little probability of identifying significant areas of buried objects or wastes without some indication of their possible location.

12. PCB Contaminants in the East Traffic Circle (ETC) Area and NIF Footprint. Commenters wondered why the characterization studies did not identify the contamination later discovered in the ETC. DOE determined that the PCBs in the ETC area were in a known waste disposal area that had already been identified. The characterization studies were not designed to identify small points of residual contamination from former cleanup activities. The recent Action Memorandum for the cleanup of the ETC was described and referenced, including the rationale for the 18-ppm cleanup level used at the ETC.